Yi2
7397
F 3

of Animal life continued
of animal life in Drowning
and freezing. ——— 93.
of Do in different nations
among Indians — 100
— of the inhabitants of } 102
hot Countries. — }
— cold Do 103
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of animal life in Other
Animals ——— 118.
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Death which ensues from fasting
is not occasioned by the Absence of
the Stimulus of food, or blood. Diges-
tions shew no Defect of the latter in
the large veins vessels. It is best on
wholly by the excessive impression of
the acting stimuli which I
have mentioned. ——

The Absence of the Stimulus of food
in fevers and Other diseases of
long duration is supplied by the
the blood acting upon the highly excited blood
Stimulus of Pain from all its
repels,
various causes, - by heat in
febrile diseases, - and by stimulating
Drinks and medicines. —— In
madness the Absence of the stimulus
of food when it occurs, is supplied by

morbid action in the blood vessels
the stimulus of false perceptions
of the brain, by in the understanding, or by unruly

passions. —

4 We come now to a most difficult
inquiry, and that is, how is life sup=
=ported in that total abstraction
of external & internal stimuli
which takes place in asphixia,
as Drowning & freezing —
& I answer it
by observing that life consists in
two things viz:
excitement and Excitability. They
are as we shall say hereafter, frequent=
=ly exchanged into each other. For
example supposed sudden deaths from
Grief - Joy - or drowning there is a
sudden abstraction of excitement,

but the excitability remains for
minutes, - and it is said for even
hours afterwards, ~~according~~ if the
destruction of the excitement has not
been attended by any injury to the
organs of the system, nor by great
degrees of ~~terror~~ fear or terror, ~~but to~~
of which or by such exertions of the
body as waste the excitability. For
example - if a person falls from
a great height into the water ~~of~~ so as
to bruise himself by his fall, - or if he is
~~previous~~ a full into the water, long
ere to give his frees time to act
his system
upon ~~him~~ - and above all, if
he has ~~attempts~~ perished after
attempting to save himself by

living energy for half an hour or an hour, there can be but little hope of his recovery, for the organic structure of the body is destroyed in the first instance, and in the two latter instances, the excitability of the system is entirely dissipated, - so that the stimuli which preserve life have nothing to act upon. - I shall illustrate my meaning, by a familiar example. - Suppose the wick of a candle to be dipped in a vial of Ether, & afterwards to be exposed to the Air. The Ether in this case is the excitability of the candle. The ~~body~~ candle in its round state is its excitement, - if a now lighted candle be but in contact with the

vapor of the other, ~~which~~ it immediately
takes fire, and communicates its blaze
to the wick of the candle. But if this
wick, or the tallow of the candle have
been deprived of their inflammability,
for which answers to the excitement
of the body) by being previously wetted
with water - it will be impossible to
excite them into a flame. The other
in this case, will be consumed or wasted,
but it will make no impression
upon the candle. - This illustration
will apply further, & serve to illustrate
the volatile nature of the excitabi-
- lity of the body, when it is deprived
of ~~the~~ its constant resource in the
excitement of the system. To prove inflame

v the stimuli which act most
speedily in this case are gentle but
& exercise, and all such others as
cause the lungs & alimentary canal into
action. Here then our theory receives
new strength - for we here behold ani-
=mal life - more than preserved - we
see it restored by stimuli acting upon
the excitab^y of the system, and gradually
converting it into excitement. —

the Atter, the lighted candle must be
lost in contact with it ~~soon after its~~
before it has time to exhale in the Air.
In like manner - Stimuli must be
applied to the excitability of the ~~System~~ body
immediately after it is taken out of
the water, ~~if will be~~ otherwise they
will be applied in vain. - ~~for it has~~

For Asphixia particularly in that
States which we call a Trance - the
State of the System is nearly the same Phaenomena
as in drowning - But this ~~disorder~~
sometimes comes on in the close of
both
slow fevers which have reduced the
excitement & wasted the excitab.y
of the System. How is animal life
in this case supported or restored by

v This was evident from heat con-
= bining near the heart - or from
the body not acquiring the stiffness
which was always accompanies
death. — It is certain they hear
and think - the mind here reacts. see
facts of Jos Rush - The German & the
annexed extract from Dr Creighton's work.

Stimuli? I answer that in all the
cases I have ever heard of, there was
reason to believe 1st that no injury
had been done to any of the Organs
of the body. & 2dly that there were con-
siderable portions of excitable - and
excitement left in the System. and 3dly
that the recovery was effected either by
the stimulus of
heat - of pure air - or by the impulse
of a divine communication to the
soul - (as in miraculous resuscitations) indirectly
- for this last is as much to
stimulating to the body as any of the
common reflex actions of the Understanding
or passions. In these cases as in the
former case life is to be not only
procured, but restored by the action
of stimuli. —

It remains yet to inquire how under this head - how is life supported, or restored ~~supported~~ in that Abstraction of heat and in consequence of it, - in that suspension of all the actions of the heart - and lungs? ~~how that~~ which takes place in freezing? I answer, that when the ~~he~~ cold acts suddenly upon the body ~~before that~~ and in such ~~that~~ a manner as not to destroy any organic parts - the excitability is accumulated as in the recoverable cases of drowning I mentioned, - and life is restored by the ~~fo~~ stimulus of heat & gentle friction applied to the body. — The heat for this purpose should be accommodated to the

V I am so perfectly satisfied that life
is suspended only in freezing where
it takes place suddenly; that I believe
it possible for the body to remain
in that state for many years without
the extinction of life. In the improve-
-ments of philosophy ~~of this~~ particularly of medicine which
remain yet to be made, with I trust my part
probable ~~with~~ that men will have
it in ~~their~~ their power to change the
age in which they are to live.
What think you gent: of suspen-
-ding your existence by means of the sudden
application ~~of the~~ agreably to the old idea of
~~Dr~~ Dr Hunter, of cold, during the
present turbulent state of our
world, and bequeathing a form of

excitability in the system. That of
pumps or spring water is generally
warm even in the first instance.
Let us next how
~~Examine yet to~~ inquire ~~to~~
far our theory will apply in explaining
the State of Animal life in all the Different
circumstances in which it exists in the
inhabitants of different parts of the
Globe, and of ~~certain animals of~~
~~other parts of~~
1 For the Indians of the northern lati=
= tudes of America there is a defect of the Stimulus
of heat in winter — &
of regular meals of the
Understanding - and among some nations
of all Emotion - for they hold it
disgraceful to shew any outward Signs
of anger - joy - & even of tender or
domestic affections. This Character of

money to be applied an hundred
years hence, to awaken you to
behold our world in that state of order,
peace & universal happiness
which we have reason to believe
~~the prophets of us do~~
will probably take place within
that period of time? ——

our Indians is very contrary to that
which is given them by some Travellers,
who acording as they have embraced the
absurd
principles of the Rousseau, or Voltaire
have endeavoured to prove that human
& happy
Nature may become perfect without
the aids of civilization or religion.
I deny the truth of these Opinions,
& what is more, I deny the facts on
which they are founded. An
Indian in a cold Climate is the most
miserable being on the face of the
earth - and as to morals, he is half
a beast - and half a devil. — The
The greatest part of
beasts his life in waking or sleeping
Under the alternate influence of hunger,
or gluttony. — But animal life here

does not want a sufficient portion of Stimuli. It is kept up by the violent exercise with which they carry on their violent passions with which they carry on their war by the extravagant joy with which afterwards they celebrate their exploits in both in their savage dances & Songs. —

2 In the inhabitants of the torrid regions of Africa, - there is a deficiency of the Stimulus of the Understanding - & of the passions, also of labor, for the Earth almost spontaneously produces all y: is necessary for their sustenance. But the weakness of the Stimuli y: have been mentioned, is amply supplied by the heat of the sun, - by the

Spices which they mix with their
diet - and by the passion for musical
sounds which so universally characte=
=rizes the ~~Indian~~ African nations.

3 In Greenland - the Sun affords but
a feeble stimulus in summer, and dur=
=ing a long winter, he leaves the ~~bodies~~
human body exposed to the reactive
action of the most intense cold. Hence
the pulse of a Greenlander seldom beats
more than 40, or 50 strokes in a Mi=
=nute. But the absence of this stimulus
is supplied by the heat of their stove
rooms - by the perspiration of their
bodies confined by ~~too~~ garments
of hair & fur - and by the peculiar

nature of their 104 aliment - which consists
chiefly of animal food, and of dried
fish - and of whale oil. — This last
article of Diet is preferred by them in
the so raw state - that Cook tells
informs us that the perspiration they discharge after eating it is so
acid, as to render their Chambers
offensive and even intolerable to an
European. — I need hardly add that
an aliment possessed of such qualities
cannot fail of being highly stimulating.

It is remarkable that the Diet
of all the northern nations of Europe
consists chiefly of stimulating animal or vegetable food, and that the
use of stimulating spirituous liquors is universal among them.

v There is likewise a general defini-
=tion among some classes of them of the
stimulus from the exercise of the
Understanding. ——

4 Let us next turn our eyes to the
the miserable inhabitants of the East
-ern Countries. — Here we behold life
in its most fatal state
~~Presenting to observation itself~~ not
only from y Absence of Physical, but of several
~~vitals against natural, but against~~
other Stimuli which operate upon the
inhabitants of other parts of the World.
Among the poor people of Turkey there is
a general deficiency of aliment. — Mr Vol-
-ney in his truly philosophical travels
informs us that the Bedouins in Syria
diet of the
"seldom exceeds six Ounces in a day, &
that it consists of six or seven dates
soaked in butter milk, and afterwards
mixed with a little sweet milk, or
Curds". — But this not all —
" But this not all —
The despotism of the Government
of Turkey, assimilates to ~~attracts~~ ~~extend~~ ~~to~~ ~~extends~~

~~domestic, and~~ annihilates all that extensive source of stimuli which arises from the exercise of the domestic & public Affections. — A Turk lives only to himself. ~~and to the moment in which~~ In point of time he occupies only the moment in which he exists — for his posterity as to life & property belongs wholly to his master! — ~~Fear~~ Fear is the debilitating principle of his actions, and keeping down every ~~and joy~~ which ~~counteracts~~ never admits a single pulsation to ~~the~~ his heart. The Tyranny which imposes a restraint upon the stimulus which arises from conversation, — ~~and~~ so when they speak Volney tells us it is with a slow feeble voice — as if the lungs wanted ~~suffocated with the~~ strength to propel air into the glottis to form distinct Articulate Sounds. But the

effects of the absence of the stimuli that
have been mentioned do not stop
here. "The same traveller adds that they
are slow in all their motions - that
their bodies are small - that they bleed
small evacuations - that blood is
so destitute of Lerosity, that nothing but
the greatest heat can preserve its fluidity -
- and that they are rather active, and
vigorous - but that under all these
circumstances of deficient stimuli they
are still healthy." This should not sur-
-prise us, for health and even long life
do not depend so much upon the strength
of the Constitution as upon a due &
exact proportion being kept up between
the Quantity of Strength & the Number
and force of Stimuli which act upon it.

The Absence of all the stimuli which I have mentioned in the Turks is supplied by 1 The heat of their Climate — 2 by their universal passion for musical sounds — by 3 their equally universal passion for ~~Dress~~ fashionable Dress. — 4 by their ~~unrestrained~~ and Universal ardor in the pursuit of Venere= =al pleasures, and 5 by the general use of Coffee or Opium. —

5 Many of the Observations which I have made upon the Inhabitants of ~~Barbary~~ Africa, and of the Turkish dominions apply to the inhabitants of China & the East Indies. — They want the stimu= =lus of animal food in many instances, as well as those which arise from the exercise of public affections. But they are supplied by — 1 by the heat of climate 2 By vegetable in many places.

aliment which abounds with Nourishment
~~fractions~~ viz: Rice - and Beans. 3ly by
the general use of tea in China, & of
stimulating
a Coffee made of the dried & toasted
~~the~~ Seeds of the Stramonium in
the countries in the neighbourhood of
the Indian coast. Some of these nations
chew ~~wa~~ likewise strong stimulating Substan-
= ces as we do tobacco. ——

Among the poor and miserable in
the ~~middle~~ nations ~~of~~ who inhabit
the middle & southern parts of Europe
the Stimulus of
the defficiency of wholsome ~~&~~ nourishment
- & clothing & of fuel - &
food - the want of ~~labour~~ liberty - ~~and~~
~~the~~ is in part supplied ~~by the~~ in
some countries by the invigorating
influence of the Christian religion
upon Animal life - and in Others,

V It is remarkable that the use of each of these stimuli is greatly influenced by the circumstances of Climate. In cold climates where the earth yields its increase with reluctance, & where digest-
=ible aliment is scarce, - the deficiency of that distinction which it is principally calcu-
=lated to produce, is sought for in the stimulus of ardent spirits. In the hot climates of the deficiency of all the stimulus of aliment is sought for in onions. Garlic - or Tobacco. But further - a uniform Climate calls for more of these artificial stimuli than a variable One - for the Alternate action of heat - cold - winds & rain upon the body, supplies their place. In Savage,

by — the general use of Malt Liquors, tobacco
tea. coffee - Garlic - onions and Opium
and Ardent Spirits. —

In no part of the world is Animal life
as far as it respects the human Species in
a more perfect State - than in Britain, France,
Ireland - and the United States. — The inter-
nal stimuli which have been mentioned,
with all the external and
the inhabitants of those countries
enjoy the additional stimulus of
freedom. — How numerous & wonderful
Dr Hulme says - most longevity in Brit & Irel. p:187
the actions of life, to which men are
vol 8 p 2. prompted by the love and protection of
liberty! — But to produce the
most salutary influence on the system,
this passion
it is necessary that it should be exercised
in a Republic. — There is an indissoluble
Union between moral - political - &
physical good, and had I been convinced

and an
ignorant life calls alike for these stimuli
~~There is less stimulus indeed~~
~~among mankind by agriculture and~~
~~consequent abstinence upon~~
more than a life which is enlightened
by civilized - hence the inordinate
attachment of the Indians to Rum &
Tobacco. It would seem from these
facts that man cannot exist without
some kind of
sensation, & that when it is not
derived from natural stimuli, it
will always be sought from such
as are artificial. —

~~Exploits performed by the~~ French armies
~~will during their present wars, with~~
~~prove~~ of life to be greatest
~~establish the truth as to the~~ quantity &
the history of the State of Connecticut
will ~~establish the truth of the~~ prove its duration
~~of human life being~~ to be longest in a republican
State.

that a republican Government was most favourable to industry - morals - and political happiness, I should have inferred a priori that it must be most favourable to animal life — But - I shall not in a future Lecture discuss this interesting Question to test upon zoological induction - I hope to prove to you that Animal life is the greatest human Quantity of life exists in the greatest Quantity & for the longest time in a republican State. The history of the

How far the Phenomena of Animals besides men accord with the theory I have endeavored to establish.

Besides the stimuli which operate on individual nations, and

V I The desire of life. This acts nearly alike upon all ages and conditions of mankind, and is a very powerful stimulus in supporting our existence. It is often visible in the prolongation of life in dying parents who send for their absent children. In many instances have ceased of their living under the most improbable circumstances, Untill they have enlarged their embraced children, and expiring a few hours afterwards. Sickly Infants by fabled Poisons often live under circumstances of the greatest weakness till they reach their native shore, & then breath their last in the bosom of their friends. This Desire of life by its vehemence, often turns the scale in favor of life in acute diseases, and the chance is always in favor of a recovery in proportion to the anxiety a patient discovers to live. Attitudes we are told died by a voluntary Abstinence

which are influenced by local, or
political circumstances, there are
certain mental stimuli which ope-
=rate in ~~different~~ every climate upon
the individuals of all the nations of
the world. — These are V

2 The ~~love of money~~ love of money. It is peculiar
to this passion to set the whole machine
of Society in motion. Hearts which
are insensible of the stimulus of ambi-
=tion - patriotism - love - & even of
domestic affections, are excited into
action by this passion. The history of
the office house in the city of Phila.
between the 10th and the 15th of Aug.
in the year 1794 will bring the remem-
=brance

from food in five days. — In Sir Wm Hamilton
his Acc^t of the Earthquake at Calabria
relates a fact of a girl who lived 11 days
without food. In the former case life
was shortened by an aversion from it — in
the latter it was protracted by the desire
of life it. Story of Brisot = negroes — & anim: magnet:
tism.

But Avarice
V, The love of money discovers its stimulus
upon the hottest in a peculiar manner
in the games of Cards & Dice. I have heard
of a Gent^n in Virginia who passed two whole
nights without sleep at a card table — and
it is related in the life of the celebrated
a noted gamester
major Baggs in Ireland, that "when he was
so ill as to be unable to rise from his chair,
he was born to the hazard table, where he
has roused suddenly to revive at the rattling
of the dice".

— 3 Public Amusements of all kinds. —
a chase
a horse-race — a cock pit — the theatre —

remembered by contemplative men
for having furnished the most str=
=tradinary proofs of the powerful
stimulus of the love of money upon
the human body. — It corrupted the
blood of Europe in the ~~commencement of~~ 1793 It produced a fever in
one, ~~instances~~ an obstinate watchful=
=ness in another — and a Mania in
a third person all of whom came under my
Care as patients. — The ~~who~~ anxiety
~~which was~~ ~~painted in many~~ of countenance — the
irregular
quick motions of the desultory ver=
=vacation — & the extempore Inhaven,
of all the persons who were inte=
=rested in this new Species of Speculation
gave a true picture of a Bedlam
or of a hospital, than of a Coffeehouse.

the Circus — the all newspapers —
Lewees - the parties - ~~ole~~ exert an Arti:
-ficial stimulus upon the Egotism, and like
~~the Opium among the Indians~~ Rum among
the Indians supply the defect of the stimulus
of thinking. [The Stimulus in ~~this~~ places of
public ~~resort~~ Amusement is varied by the
difference of rank & Sex which frequent them.
Homage from an inferior to a Superior, &
a condescending smile from a Superior to an
inferior, - and ~~the~~ flattery ~~from~~ [to that Sex
which is disposed to feel it most], are
all belong to the artificial stimuli of
Animal life.] —

4 The Love of Drugs. ~~Liquors~~. — This stimulus
is not confined in its influence wholly
to Coxcombs. ~~and~~ male & female
It acts in some
cases upon ~~weaklings~~ humbles. I have heard of
a Gentleman in South Carolina who

6 The Love of fame. This passion acts
in various ways, but its stimulus
is most powerful & durable in milita-
ry life. — It counteracts in
many instances the debilitating effects
of hunger & fatigue and labor. It
has even done more. It has rendered
the debility which is connected with
many diseases. In several instances
which have come within my compass
of my knowledge - it has cured the
pulmonary consumption. +

7 ~~I wish to understand the~~
The different religions of the world.
Eyre - Gentleman - I hold a religion
is, as useful
of some kind to be as necessary to

Atheism is the worst of Sedatives to the Understanding and passions ~~of the~~ ~~soul and the powers of the~~ It is the ~~faith~~ abstraction of all hope & joy — and these we said formerly were two of the most powerful of the inter= =nal stimuli. Man is as naturally a religious, as a social and domestic animal. X

always relieved himself from a fit of melancholly by changing his ~~clothes~~, & I believe there are few people who do not feel their Spirits invigorated by putting on a new Suit of Clothes.

5 Novelty is an immense source of agreeable Stimuli - Hence we find new companions - new studies = new pursuits new pleasures - new modes of business - new prospects - new Situations with respect to town & country - or to different Countries —

animal life, as it necessary in
Government. — Religions are more or
less friendly to human life, as they
elevate the Understanding & in proportion
cast upon the passions of hope - and
the emotion of joy. It ~~is~~ will
readily occur to you all that Christian-
=ity, when perfectly understood & explained,
has immense advantages in
this respect over all the religions in
the World. It is the natural stimulus
of the human mind, so much so as
with and Friend are the natural
ailment of the body. The love of money
-public Amusements - the love - the love
and ~~the love~~ of fame - of unlawful
as also the Stimuli of
pleasures - Tobacco - Opium and
Spirits -
Ardent are all imperfect Substitutes
the
for its gentle - and durable stimulus
of the Xn religion
upon the System. It even impairs
the efforts of the love of liberty, ~~and~~

And ~~those wars are against~~ the same violence is done to the understanding and affections by depriving them of a God, that is done to both by dooming a man to live alone! in a cell deprived of the pleasures of social and domestic life. They egregiously mistake ~~therefore against the evidence of reason,~~ and the nature of man who attempts to substitute ~~the~~ for it - pose that he can exist without a religion of some kind. The French nation have lately given the most impressive after rejecting the worship proof of this assertion. They have of the true God, yielded to the impulses of the human heart in favor of an object of adoration, by worshipping human Reason in the figure of a prostitute picked up in the streets of Paris.

The conduct of many ind: has
proved this in all ages or countries.
when the true God has been rejected,
Nature, fortune, reason & in his
stead.

all exert an invigorating influence not only upon the health but upon animal life.

V This change in Man shall health and longevity be universal, and old age be the only Outlet of human life. This delightful change in the Animal Economy shall be brought about not by refinements in civilization — not by Science — not by liberty — nor alas! they have all exerted their influence in vain for not in a word by any thing human Reason can do — by for they have all exerted their influence in vain for that purpose — but by the Sublime Decree universal prevalence

How long the world may continue to
supply substitutes
~~Stimulus~~ to this invigorating stimulus
time must,
is uncertain, but the ~~period~~ happy
and will come
~~season of universal temperance~~

~~as to be~~ ~~when the time is not~~ (if I may be allowed the expression)
~~distant~~ when the ~~united~~ passions
shall be reduced, and the body & mind
of man resume their original order.
Republican forms of government are
favourable vehicles of the pure &
simple
~~to~~ ~~favourable~~ precepts of Christia-
nity, and these are now ~~spreading~~
struggling for
birth in
~~the~~ many parts of the OD world. We
the use of the military passions is
becoming ~~unpopular~~ odious in many
countries — and now the artificial
stimuli of Tobacco - and Spirits
~~are~~ are less in use than formerly

& powerful influence of the doctrines & precepts
of the X^n Religion. — I have de —

& Thus I have hitherto said nothing
of the influence of comparative Situa-
=tions in all countries upon animal life. I shall only observe
here that country people are exposed
to more stimuli than citizens from
a purer air - more regular labor - and
more natural sounds. - I allude here
to the singing of Birds. - It is remar-
=kable that this stimulus is applied to the
system when it is most debilitated,
that is in the mornings & evenings. In the
of mountains & some
Country the inhabitants are exposed
Sea Coasts
to more stimuli than persons who
inhabit a level country, or who
live at a distance from the sea. In
both cases the Stimulus arises from pure air.

particularly in Britain - ~~Holland~~
and France ~~the disuse of these Articles~~
& Sweden.
~~should~~ Tea & Coffee I have been
told are now substituting in the last
of these countries, not only in form
homes, but in turn to the use
of distilled Spirits. The disuse of these
loathsome & unnatural stimuli
evidently shows a diminution of bru-
=man misery, and a humility to
more rational & natural stimuli just
as of the disuetude to Wine & Beer in the
Low absence of a fever, shows a
return of the appetite to natural
aliment. Thus far - Quest: have
~~Thus~~ ~~Stimulants~~
I considered animal life as it respects
the human species,
the ~~animals~~, but as I conceive it

v And here first we must extend our Ideas of Animal life. The Deity seems to have delighted in Variety in all his works. — Should we discover the Stimuli in Support life in Less to be weaker in other Animals than in Man, we must remember that this is no greater departure from their affinity to man, than their having less fine, or beauty, or intellectual powers. —

All Animals more exquisite Senses than Man except but

to depend upon the same causes in
different proportions, & differently mo-
-dified in animals of every Species, it
was my theory requires that I should apply
my principles to explain the state of
life in each of them so exhibit
phaenomena which seem to con-
-tradict all that has been advanced
upon this subject. V

I presume that all the animals we
are acquainted with, even the shell
fish — have either
lungs hearts - lungs - brains - nerves,
or muscular fibres. It is as yet a
controversy among naturalists
whether animal life can exist
without a brain or nerves - but

no one has denied muscular fibres and of course contractibility, or stimulability, to belong to Animal life in all its Shapes. —

2 All the animals we are acquainted with require more or less Air for their existence. — now this we now to be a powerful Stimulus in the support of human life. —

3 They all feed upon substances which ~~to their bodies~~ are more or less Stimulating to their bodies. It is true some of them take their aliment at long periods. Bruce tells us that he kept two small animals called Lizards on which the Lunates, or horned Vipers feeds, for two years in a vial in

The male frog during its long connection
with its female, suffers its limbs to be
amputated without discovering the least
mark of pain; or [illegible] without relaxing
hold of the object of its
in its embrace.

good health without 120 food or sleep. Per-
haps this period was not more in
this animals life than 24 hours are
to man. Its living without sleep
is a proof of its propagating an uncommon portion
-on of Original & natural excitement.
4 They all propagate, & of course feel
the impulse of the venereal appetite.
I shall hereafter mention some facts
from Spalanzani
upon the subject of generation, which
some of these animals in which life
prove that full this Stimulus in
is in a feeble state
a degree to which longer lived animals are
Strangers. V — If all the other stimuli
which act upon them, operate
in the same ratio we may account
at once for the Degree & Duration
of their lives. —

connected with : p 123

&c They have all live in a connec-
tion with the air. Even the Snail draws
in air for 7 months underground
thro a pellicle or cover which
it weaves out of slime on its body,
& if made it thick, it has
to open a passage to the air. Now
Air we said was one of the most
powerful stimuli of life. —

But it is possible life may exist
in these Animals without in the
total absence of any impression,
or stimulus, provided, the torpid

5 In many animals we behold evident marks of understanding and ~~reason~~ passion. — The Bee - & the Ant exhibit many marks of the former, & where is the School boy that can not bear testimony to the angry passions of a wasp? ~~&~~

6 But what shall we say to the history of those animals which pass whole weeks & even long winters in a ~~torpid~~ state in which there appears to be an absence of all the stimuli of heat - Nourishment - & exercise? - This is a difficult Question, but it may be answered.

1 By supposing that they pass a

State we have mentioned be low't our
suddenly. In Swallows which pass this
winters in the bottom of Lakes & mill dams,
the torpor is certainly brot on in this
way. —

V In other animals it is probable
the stimulus of undigested aliment
keeps up the motion of life, for Jn°.
Hunter has proved the by an exp^t on
a frog, y^t cold below a certain degree
checks digestion. — They all live —

Turn back to p: 121

degree of excitability, analogous to the
length of the intervals between the
times of ~~taking~~ eating which we observe
in Other Animals. —.

2 That in some of them - the ~~fitness~~
= ness of digestion goes forward during
the whole winter in the stomach.
Winter
There is an Animal in Carolina
R
which swallows a pinch of snot just before
it retires to sleep ÷ ~~which do~~ This solid
substance is found in a fluid state in its
stomach in the Spring. V

[3 The Bear is said to live upon its fat
during the winter. may not a portion
of latent heat be extricated from this
fat in its passage from a fluid to a fluid
solid
state, and converted into sensible heat,
and may not this sensible heat con=
= tribute to

keeps up some of the motions of life ~~go to p. 124~~

1 Let us be careful how we limit our ideas of animal life. It may consist of motions - too small for our perceptions.

3 Let us be careful - how we limit our ideas of excitability. — It may exist under circumstances, & for a length of time of which we can form scarcely any conceptions: ~~It would then~~

2 Let us be careful - how we limit the force or degree of Stimuli. In the ~~torpid~~ hybernation of Animals, the excitability of their bodies may be so much accumulated, or so exquisitely formed as that portions of heat - light - & sound which ~~may~~ ~~one degree of heat and~~ descend below all calculation may act upon with a force which is scarcely audible. ~~in animal life. in its~~ Had we been told but after admitting the Doctrine of

life being the product of all the stimuli that act in the evening state) that it could exist in that state of darkness - silence & inactivity which takes place in sleep, we should have ~~this~~ ~~been~~ found it as difficult to upcent to ~~the~~ it, as to the continuance life in certain animals, ~~during a long~~ sleep I said formerly is a tendency to death. The Hybernation of an animal is only a second grade in the Scale which marks the progress of life to its ~~dis~~ extinction in death.

If we said formerly that Heat was a powerful & universal stimulus & in producing animal life. But what shall we say to those animals which live in a cold element, and whose blood is scarcely above that point at which we behold

+ It is very remarkable that the vital powers, or ad it might be expected, the stimulabili: ^ tity of animals is always in proportion to their deficiency of sentient powers. This is most evident in the polypi which when cut to pieces reproduce themselves. — In being cut - it is probable they feel little or no pain - also frogs.

v I might illustrate it still further from the analogy of plants in which life - & growth are supported wholly by stimuli - particularly of heat & light - But this belongs to the ~~of Botany~~ another professorship. — I shall only remark that the seed of plant resembles an animal body in having no principle of life within itself. It ~~and~~ procured in a

the beginning of frost? Why - that heat & cold are relative terms - and that different animals require very different degrees of heat - and that 32° are as stimulating to the bodies of certain animals as 80° or 90° are to the human body.

Thus fast have I enumerated all the remote causes which produce animal and tried them all the stages and life, and modified phenomena of this human life, & this the different nations, and pursuits of men, and this all the shapes of animals which inhabit our globe.

My Object has been simply animal life. Divines tell us that man besides this - has a rational - & a spiritual life. I believe in each of them, & that

in the earth
Drawers for years, or if sunk below
the stimulating influence of heat &
Air it never discovers the least sign
of vegetative ~~power~~. life. This fact has
vital
been urged as a proof of a principle in

Iv I consider this, as a Striking Argu-
=ment in favor of the ~~Separate~~ existence of the
Soul in a Separate State ~~of existence~~
after death.] — the human body, but
the explanation that has been given
of the only cause of the life of a Leech,
converts it into a strong Argument
in favor of the truth of the theory I
am now delivering. —

they both exert an injurious influence
= Extrin circumstances upon the human
body. — But the animal life which
has been the Object of our inquiries is
± capable of existing, wholly independant of
either of them. Hence we can not
not only live — but enjoy good health
who are destitute of reason, & of sensi-
bility in all the moral powers. Witness
they in Samores
Idiots whose character is so ably Drawn
by the Duke of Sully. —

On what part of the system do
the stimuli which have been mentioned
act? — On the muscular fibres they
produce contraction of motion — on
the nerves they produce — sensation &
perception, judgment, & reason, or in other words
& in the Brain they produce thought.

perfect

or in other Words, life in man
consists of in motion - Lineations of
thought.

& good health consists in the Unity
or equable diffusion of this motion to
sensation
over every part of the body; and in
the free and easy exercise of all
the faculties of the mind. —

~~of perceptions~~. Thus may be muscular contraction without nerves — sensation without thought — and thought without sensa: =tion. ~~Of the teeth of each of these~~ Hunter's Dissections & many ob: =servations fully establish the truth of each of these propositions. — I shall speak more particularly of each of them under the head of the Nervous System.

~~The possibility of~~ Life ~~more than~~ Sensation - & Thought Life Sensation is Motion excited by Stimuli. ~~Life~~ It is as much an effect of impressions upon a peculiar species of matter, as Sound is of the stroke of a hammer upon a sonorous body. Life ~~Thus~~ It is a Quality, & not a principle. This is the natural inference from y: facts which I have mentioned. Exclude

as certainly as innate Ideas or Vision.

therefore, the intelligent principle of
Whyt - the living principle of Mc Hunter -
the anima medica of Stahl - and the
vires naturæ medicatrices of Dr Cullen +
wholly from my System of Medicine.
- Every phenomena Animal of life may be ex:
-plained by the principles which are
in those books of Nature in which
there can be no error presumption
of intelligence - or an even a conscious
principle than there is in Air - fire - & water. -

Should it be asked what is that pe:
-culiar Organization of muscle - Nerve -
& brain which enables them either
to emit life effects when acted upon
by Stimuli? - I answer, I do not

know. — The great Creator who has not
~~left himself without~~ established a witness in the
natural for himself in every part of
the moral natural, as well as the
Moral World — and by bounding our
inquiries, has kindly prevented our
forgetting his unsearchable wisdom,
or leaning too much upon the strength
of our own Understandings. intellectual powers. —

Mohamed one said that he should
believe himself to be a God, if he could
bring down rain from the clouds, or
give life to an Animal. It belongs
exclusively to the true God of the Christians
& Inundation so as
to endow matter with motion, and to
to enable them to produce thought,
make it capable under peculiar
circumstances such an of Organization, as

Upon reviewing the causes of Animal life as they has been explained it appears that the doctrine is not merely speculative, but is of immense application to Physi! to Pathology & the practice of Physic. For it appears to be the key stone upon which Pathology effectually rests. The Theory I have delivered, of the Vires naturæ medicatrices, and in doing this, it not only removes a large mass of rubbish from medicine, but it removes at the same time one of the foundations of the Epicurean or Atomistical philosophy. Admit the principle we call - nature to act with intelligence in the human body - and we open a door for a principle under the

to produce
producing life from 130. the impression of stimuli.

with this we finish the history
of animal life. I have croped a ra-
-pid & dangerous stream. wheeling I
have gained the opposite shore clean,
or covered with mud, and weeds, I
leave wholly to your determination.

On animal Heat

go to p:132.

[In the first view which I supposed
myself to have taken of a human Being
I was struck not only with his pro-
-ducing life, but which consisted in
digestion & sensation
position excited by stimuli, but upon
Heat likewise. Upon approaching
him I found that I took kindly
the hand: I found it warmer than

go to p:131

I aim to show the same to act in every part of
the Universe - to the exclusion of ~~by~~ ~~by~~ a supreme
eternal
and ~~eternal~~ creator. By the theory I
have proposed, we ~~see~~ render the existence
& support of animal life, the immediate
act of a supreme Being, by the in-
strumentality of causes which are con-
stantly under his direction, & I have it in
philosophy
become as true in ~~religion~~ as it is
in religion: ~~that~~ ~~Being~~ "he" is indeed the
presence of men" & that "in him we live &
move & have our Being." — turn over to p131. 3.
reduced
4. The theory I have delivered ~~render~~
the mysterious subject of animal life to
a level with many, ~~of the~~ not only of
the operations of nature, but of likewise
of art. It is in every respect as truly
mechanical, as the passage of a ship,

[or the motions of a mill, under the impulse, or stimulus of the wind, or water. It differs from them only in the matter on which the stimuli which produce life act, being of a nature peculiar to itself. —

It is agreeable to trace the analogy of this theory with the operations of the will as maintained by Dr Hartley, Dr Collyns & Priestly. Those writers have clearly proved that motives are to the will what stimuli are to animal matter, and that the notion of the will possessing a self determining power within itself as absurd as the notions of vital principles, or thinking principles, of the healing powers of nature. — Here we may admire the Unity of truth, & the simplicity or oneness of the means by which the Creator governs his Universe.]

p. 130

! It exhibits a new view of the nervous system by discovering its origin, in the extremities on which impressions are made, of the nerves, & its termination in the brain. This idea is happily extended by Mr Valli in his treatise upon animal Electricity.

from the impulses of the wind or tide;
But this theory does more - it prostrates
in the most humiliating posture
the mind and body of man at the footstool
of the divine power, and thereby - As well
might an oak tree which is tributary
to the earth - to water - to air - and to the heat of
the sun cherish for its sap and foliage,
cherish
entertain pride in its existence, as the
creature man, - for he owes his life
every moment to the influences of
causes which are as much in-
dependant of him, as the elements are
of a common vegetable. It was
probably from this view of this dependant
state of animal life in man, that it is
said in the scriptures to the
effect - that he is as a vapor - as a
flower - to grasp - to a weaver's shuttle -
& thinks
all of which show that he exists,
only from necessity, and not from any
inherent principle of life or thought
of

the heat of the surrounding atmos=
=phere upon ~~feeling his face~~ laying
my hand upon his face & breast, I
perceived the same agreeable temper=
=ature. In contemplating the
human body we are
~~lost, & recognized that the uniformity~~
~~was that which I was~~ its temperature
~~much struck with, was exactly~~
living
the same in every part, ~~of his body~~,
with its uniformity
~~& that it was the same~~ in all
seasons & climates, and ~~in all~~ altered
by any of the conditions of the
system as they appear in the different
stages of human life. ~~It~~ imagined
~~that he added further, that this fact~~

Hahnemann said that the Doctrine of Animal Life which Hahnemann taught is of extensive application in the practice of Physic. - yea Great: the whole Secret of preserving in all diseases consists in knowing when ~~to abstract, & when to apply Stimuli~~ - in what manner, & in what proportion we are to diminish, or increase Animal life, by the abstraction, of natural, or by the addition of artificial Stimuli ~~to the body~~ to the whole, or particular parts of the body. However complicated the materia medica may be, all medicines therefore be classed under two heads, viz: Sedatives & Stimulants - ~~all~~ for diseases (with a few exceptions)

~~in equal bravery~~ 132

is ~~the cause in consideration of the~~
~~human race.~~) ~~+~~ The business of the
present lecture is to inquire into
the cause of the phenomena known
as animal heat.
~~by animal heat is meant~~

Several Hypotheses have been proposed
to account for animal heat. I shall
mention a few ~~most~~ of them, & then propose
a theory which I conceive to be liable
to the fewest Objections.

~~+~~ 1 Dr Stevenson has taken a good deal
of pains in the end Essays of Edin^r to prove
that animal heat depends upon fermen-
-tation taking place in the blood, more
especially a fermentation of the putre-
-factive kind. To this I Object
1. That we have no proofs of a fer-
-mentation

~~all~~ consist of too much, ~~or too little~~ a debility
motion and sensation, or in ~~other words~~
~~that predispose to it~~ ~~too little natural~~
~~to excess~~, or too little
~~life~~, either in the whole, or in parti-
-cular parts of the body. — return to
p 130. n° 3.

v a power to resist putrefaction is
said to be one of the properties of
animal life. —

of any kind going forward in the blood.

2 That a putrefactive fermentation in the blood is incompatible with health life, and for- is incompatible with life, and for- beyond a certain degree with animal life. — It has moreover been fully disproved by the experiments of D^r Lybert. V

3 That Putrefaction is not attended w^th the generation of any heat: — a Whale in putrefying on the sea shore does not contain any more heat that what it derives from the surrounding atmosphere. — A human body that perishes with a putrid fever loses all its heat as soon after it parts with its life. — Even before death, the heat is often much less than in those fevers in which ors gangrenous diathesis has taken place as in Rheumatism & Pleurisy.

moreover
The heat which is generated in fermen-
-tation is confined to its Vinous stage.

all
2ly That Animals which breath as we
do, have the same degrees of heat. Now
E.G: the Elephant &
monkie.
this would not be the case, if it depended
on putrefaction, for the heat generated
by the passage of bodies to putrefaction
is proportioned to the Quantity of matter
they contain.

3d theory
A 3 Hypothesis which has been proposed
is, that Animal heat is generated by
the friction of the fluids against the
Theory
solid parts of the body. This Hypothesis
go to p: 136 n° 3
is supported by the Phenomenon of
heat being frequently connected with
the force of the circulation. In answer
to this, Hypothesis I observe 1° That

5 The view of Animal life which I have given furnishes a new Argument in favor of the the will's acting only from necessity, for the motives being as much the cause of all its exercises, as stimuli are the cause of animal life. If this were not true, there would be a defect of unity in the plans of the Creator. In Ey & Bosley.

6 Ey & Bosley, the doctrine of Animal life which has been delivered, leads us to a that sublime & just view of the Deity which is given of him in the Scriptures, viz: as possessing life within himself.

~~principle of life to any other~~ This
divine prerogative has never been
imparted but to One Being, and that
is the Son of God — This appears from
that declaration of St John Chap: V. 26
"For as the father hath life in himself,
so hath he given to the Son to have
life in himself." — Hence he is
called in the new testament "the life
of the world" — "the prince of life", &
in many place life itself. — This
view of ~~this~~ the independancy life of
~~the Son of God~~ circumstances which
create & support it in man exalts
the Son of God infinitely above simple
humanity, and establishes his

divinity from reason as well as from revelation. Truth you see God: is an Unit, and the more we discover of it in the One branch of knowledge, the more we shall discover of it in Others. Physiology and medicine above all Other sciences, lead to first principles in theology, metaphysicks, Morals & religion.

6ly The doctrine of Animal Life which I have taught enable Us to decide upon the long agitated Controversy of innate ideas. It leads us to reject them altogether, and to ascribe them wholly to

the influence of external impressions
acting upon a capacity in the
mind to receive ideas. From to B

From these Observations you
will perceive that truth is a Unit,
and the more we discover of it in
one branch of knowledge, the more
we shall discover of it in others.
Physiology & medicine above all
other Sciences lead to just &
principles in Theology [Religion
morals & metaphysics] —

In the View which I have given in the
Origin of Animal life in man in the
Garden of Eden, I supposed his body
~~mentioned the body~~
to be cold before it was animated by
the Air which his Creator breathed
into his lungs. No Sooner did Air thus
Organs expand and Contract alternately,
than a gentle heat was diffused over
every internal and external part of his
body. By means of this heat the solid
blood was liquified, and the Brain, Nerves
and muscles acquired Sensibility & Irritabi-
=lity, which prepared them for their im-
=portant Offices in the Animal Oeconomy.
Our business at present is to inquire into the
Origin ~~Cause~~ of this heat. For this purpose

V It is no Objection to this Argument that Cream acquires some heat when agitated against the sides of a Churn, but this depends upon the decomposition or fermentation of the cream in its passage into Butter.

heat cannot be produced by friction unless the bodies which act upon each other are unequal. A fluid substance acquires a particle of heat by being shaken in a Vial. Now the blood Vessels we have known have no inequal surfaces, and therefore particles of blood have no roughness in them. V

2 In producing motion by friction, it is requisite that one of the bodies which is moved should be in a fixed state. In a Rope in running thro a pulley one rotates no heat - for neither of them is at rest. Now - we know that neither the blood vessels, nor the blood in a healthy animal are ever at rest - consequently no heat can be produced

Thus It is strictly true therefore what is said by the Schoolmen "Nil est in intellectu quod non prius fuit in sensu". Were it possible for a child to grow up to manhood without the use of any of the senses of hearing - Seeing - smelling - tasting, and touch - he would not possess a single idea of any material object. He would be with respect to our Globe as destitute of thought as an oak tree. He does excited - they are to both to raw materials - but no impression be. p. 131.
idea without

It is a proper test of truth in science to find it accord with Revelation. Now it teaches. 1 natural state of man. death after the fall.
V3

2 his life in 2d. 3 The first

on good health & long life - equable & tranquille
& great commandment to love
God to be founded in reason con-
-sidering that he not only originat-
ed but supports life.

no objection to this Doctrine.

The creation of a soul as related
by moses. It means animal life
was infused - or the capacity of
body for emitting life was com-
=plete.

But: on poisons - illustrations
& we learn from this Doctrine that
"
"vera conservatio, perpetua creatio"
- every hour - every moment we are
the subjects of creat power as much as
when Adam came out of the hands of
his creator. Each spring a new creation.
the psalm - thou & they die &